

AME 40463 Senior Design Project: Fall 2006

Mini Mozarts Prototype Grading Rubric

Possible Total Rating – 40 points

1. Functionality (18)
 - a. Xylophone plates mounting allows for clear sound (3)
 - i. Plate strike inaudible (0)
 - ii. Audible, but quickly damped (2)
 - iii. Clear sound (3)

 - b. Mechanism produces sufficient force on plate to produce clear sound (3)
 - i. Poor mechanism mounting results in lateral mechanism movement (1)
 - ii. Sturdy mounting, but ineffective transfer of force from key to xylophone plate to produce clear sound on plate (2)
 - iii. Sturdy mounting and sufficient force transfer to plate for clear sound (3)

 - c. Neat packaging of electronics (3)
 - i. Proto-board separate from xylophone plate/keyboard structure, and wires arranged in a disorderly fashion (1)
 - ii. Wires arranged neatly, but proto-board is separate from xylophone plate/keyboard structure (2)
 - iii. Wires packaged neatly and proto-board is joined to xylophone plate/keyboard structure (3)

 - d. Three functioning sliders (3)
 - i. Potentiometers produce inconsistent voltages resulting in misread notes (1)
 - ii. Potentiometer voltages correspond to desired notes (3)

 - e. Three functioning keys (3)
 - i. Poor mounting allows for lateral movement (1)
 - ii. Purely vertical motion, but fails to return to start position (2)
 - iii. Sturdy mounting, and key returns to start position upon release (3)

 - f. Solenoids produce clear sound when striking plate (3)
 - i. Solenoids not operational (0)
 - ii. Solenoids do not produce clear sound (1)
 - iii. Solenoids produce clear sound from plate (3)

2. Listen Mode (11)

- a. Proper lights over the keys light up when the corresponding note on the slider board is being played (5)
 - i. Lights do not work (1)
 - ii. Lights work, but light over key does not correspond to note being played on slider board (3)
 - iii. Correct lights are turned on when corresponding note on slider board is being played (5)

- b. Capable of playing through notes on slider board once (6)
 - i. Incapable of playing any notes on slider board automatically (0)
 - ii. Capable of playing first note on slider board, then stops (2)
 - iii. Capable of playing two notes, then stops (4)
 - iv. Capable of playing through all three notes on slider board once (6)

3. Play Mode (11)

- a. Proper key light corresponding to note on slider board turns on when prototype is waiting for key press (5)
 - i. Lights do not work (1)
 - ii. Lights work, but light over key does not correspond to correct note (3)
 - iii. Correct lights are turned on when corresponding note on slider board is waiting to be pressed (5)

- b. Negative feedback if wrong key is pressed (3)
 - i. No negative feedback (0)
 - ii. Negative feedback present, but program moves to next note anyway after wrong key press (2)
 - iii. Negative feedback present, and program waits for correct key press until moving to next note (3)

- c. Sensors recognize correct key press and move to next note on slider board (3)
 - i. Sensors do not recognize key press (0)
 - ii. Sensors inconsistently (>10%) read key press (2)
 - iii. Sensors read key press properly (3)